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SOURCE Metalurgia, No 1, 1950, [REDACTED]

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INFORMATION ON RUMANIAN AND SOVIET TRACTORS

Prof S. Crisan, Eng D

The Rumanian IAR-22 tractor, the predecessor of the IAR-23, was a combina-
tion highway and farm tractor with rubber-tired wheels. The speed was high
and for this reason there was little reserve power in first and second gears
for use in very heavy soil. The following is additional information on the
IAR-22 tractor [REDACTED]

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<u>Gear</u>	<u>Traction Power at Drawbar (kg)</u>	<u>Speed (km/hr)</u>
1st	1,280	4.6
2d	920	5.1
3d	805	6.4
4th	555 (approx)	10.5 (approx)
5th	300 (approx)	19.5 (approx)
<u>Gear</u>	<u>Area Plower (ha/hr)</u>	<u>Fuel Consumption (kg/ha)</u>
1st	0.29	25.8
2d	0.39	19.5
3d	0.4	16.3
4th	-	-
5th	-	-

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In 1948, the IAR Works at Stalin (formerly Brasov) was reorganized and renamed "Sovromtractor." The plant will build the Soviet KD-35 tractor, the most modern tractor in the world. The USSR will send the equipment needed to construct a modern steel foundry of 10,000 square meters (and a forging shop of 10,000 square meters.) The present number of machine tools will be increased by 180 modern machine tools.

Construction of the IAR-23 tractor has been started. This tractor is the result of the experience gained through the use of the IAR-22 tractor on farms. The IAR-23 tractor differs from its predecessor with respect to the gear box, the more efficient air and oil filter, and the simplification of the component parts. Tests made on the IAR-23 tractor give the following speeds and traction power

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<u>Gear</u>	<u>Speed (km/hr)</u>	<u>Traction Power (kg)</u>
1st	3.31	1,580
2d	4.35	1,250
3d	5.53	990
4th	6.50	820
5th	8.00	660

There is sufficient reserve power in the first three gears to permit the IAR-23 tractor to perform better than the IAR-22. The IAR-23 is essentially an agricultural tractor with adequate power for Rumanian soils.

The following table gives a comparison of the performance, fuel consumption, and traction power between the IAR-22 and IAR-23 tractors.

<u>Tractor</u>	<u>Gear</u>	<u>Area Plowed (ha/hr)</u>	<u>Fuel Consumption (kg/ha)</u>	<u>Traction Power (kg)</u>
IAR-22	1st	0.29	25.8	1,325
IAR-23	1st	0.45	13.0	1,600
IAR-22	2d	0.39	19.5	900
IAR-23	2d	0.66	9.4 [sic]	1,150
IAR-22	3d	0.47	16.3	725
IAR-23	3d	0.42 [sic]	13.5	800
IAR-22	4th	-	-	-
IAR-23	4th	0.48	13.4	650

To make full use of the extra power of the IAR-23 tractor in first and second gears, a five-bottom plow has been devised for use with this tractor. The IAR-22 tractor can be used only with a three-bottom plow.

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"Sovromtractor" will produce the KD-35 tractor serially. This is to be a caterpillar tractor which has a traction power 25 percent greater than the IAR-22 tractor and a smaller fuel consumption. The KD-35 tractor will be simpler and cheaper to produce and will have a longer life because of the reserve power.

Fifty percent of the arable land in Rumania can be worked by the planned stock of 25,000 tractors. The remaining 50 percent, which is hilly and inaccessible, will be worked by animals. The increase in the stock of tractors will effect an increased activity in the field of agricultural machinery.

The monthly production of tractors in Rumania was 28 tractors in April 1947, 33 in June 1947, 60 in January 1948, and 103 in June 1948.

The most important types of tractors made and used in the USSR are (1) wheeled tractors: U-1 (Universul) of 20 hp, U-2 (Universul) of 20 hp, and SKHTZ-NATI of 52 hp; and (2) caterpillar tractors: STZ-S-65 of 65 hp, STZ-S-80 of 80 hp, SKHTZ-NATI of 52 hp, and KHTZ-T2G of 48 hp. The three types of wheeled tractors have engines which operate on kerosene but are started on gasoline. The first three types of caterpillar tractors have Diesel engines; the KHTZ-T2G has a motor which operates on gas generated from wood chips.

The wheeled tractors are used for light work such as mowing, transportation, and even light plowing. The caterpillar tractors are used primarily for heavy plowing and other farm work. Their 50- to 80-hp-engines and caterpillar tracks give excellent performance. The use of caterpillar tracks instead of wheels increases their traction power by 25 percent.

The most modern Soviet caterpillar tractor is the KD-35, named the Kirovets, which has a diesel engine started by a small gasoline engine. From all points of view, this tractor is the masterpiece of the Soviet tractor industry in performance, simplicity, ruggedness, and dependability. The engine of the KD-35 tractor is a four-cylinder diesel which develops 37 hp at 1,400 rpm. The total weight of the tractor is 3,800 kilograms.

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